

CLAIM AMENDMENTS

1 1. (Original) Apparatus for filling bags (1) with loose
2 material (2), comprising a tube (210) for supplying the material
3 (2), substantially coaxial with the said bag (1), characterized in
4 that said tube (210) is able to move from a position with the
5 supply mouth (210a) outside that bag to a position with the supply
6 mouth (210a) inside the bag (1) and arranged at a height
7 substantially coinciding with the bottom (1b) of the bag (1) where
8 filling is started, and vice versa.

1 2. (Original) Apparatus according to Claim 1,
2 characterized in that it comprises means (112) for retaining the
3 bag (1) at a fixed height.

1 3, (original) Apparatus according to Claim 1,
2 characterized in that the top end of the tube (210) is integral
3 with a hopper (211) containing the product (2).

1 4. (Original) Apparatus according to Claim 1,
2 characterized in that it comprises means for displaceably actuating
3 it in both directions along a vertical axis (Z).

1 5. (Original) Apparatus according to Claim 4,
2 characterized in that said actuating means (200) consist of a motor

3 (231) connected, by means of transmission means, to a frame (232)
4 integral with the hopper (211).

1 6. (Original) Apparatus according to Claim 5,
2 characterized in that said means (230) for displaceably actuating
3 the frame (232) are of the variable/controllable speed type.

1 7. (Original) Apparatus according to Claim 1,
2 characterized in that it comprises means for weighing the product
3 (2).

1 8. (Original) Apparatus according to Claim 7,
2 characterized in that said means for weighing the product (2) are
3 arranged upstream of the said supply tube (210).

1 9. (Original) Apparatus according to Claim 1,
2 characterized in that it comprises means (500) for weighing the bag
3 (1) during filling.

1 10. (Original) Apparatus according to Claim 9,
2 characterized in that said weighing means (500) consist of load
3 sensors (501) connected to the bag retaining means (112).

1 11. (Original) Apparatus according to Claim 1,
2 characterized in that the mouth (210a) supplying the product (2) is

3 equipped with rotating plates (210b) able to be arranged
4 transversely with respect to the mouth (210a) of the tube, so as to
5 cause closing thereof, and, parallel thereto, so as to cause
6 opening thereof.

1 12. (Original) Apparatus according to Claim 1,
2 characterized in that it comprises means (240) for measuring the
3 volume of the product (2) to be introduced into the bag (1).

1 13. (Original) Apparatus according to Claim 12,
2 characterized in that said volume measuring means consist of a
3 feeder screw (240) coaxially arranged inside the tube (210) and
4 able to convey measured quantities of product (2) from the hopper
5 (211) to the bottom (1b) of the bag.

1 14. (Original) Apparatus according to Claim 13,
2 characterized in that said feeder screw (240) is associated with
3 variable speed actuating means with a system for control thereof.

1 15. (Original) Apparatus according to Claim 1,
2 characterized in that it is associated with air and dust suction
3 means (300).

1 16. (Original) Apparatus according to Claim 15,
2 characterized in that said suction means consist of longitudinal
3 ducts (310) arranged in a diametral position with respect to the

4 tube (210) and extending substantially along the whole axial length
5 of the said tube.

1 17. (Original) Apparatus according to Claim 1,
2 characterized in that it comprises deaeration means consisting of a
3 plurality of pipes (1311), the bottom end part (1311a) of which is
4 hinged with pins (1311b) able to allow expansion thereof in the
5 transverse direction, by an amount corresponding to the width of
6 the bag.

1 18. (Original) Machine for filling bags (1) with loose
2 material (2), comprising at least one filling station (R) where
3 there is a filling apparatus (200) comprising a tube (210) for
4 supplying the material, substantially coaxial with the said bag
5 (1), characterized in that said tube (210) is able to move from a
6 rest position with the supply mouth (210a) outside the bag (1) to a
7 position with the supply mouth (210a) inside the bag and at a
8 height substantially corresponding to that of the bottom (1b) of
9 the bag (1) where filling is started, and vice versa.

1 19. (Original) Machine according to Claim 18,
2 characterized in that it comprises means (112) for retaining the
3 bag (1) at a fixed height.

1 20. (Original) Machine according to Claim 18,
2 characterized in that the top end of the tube (210) is integral
3 with a hopper (211) containing the product (2).

1 21. (Original) Machine according to Claim 18,
2 characterized in that it comprises means (230) for displaceably
3 actuating the filling apparatus in both directions along a vertical
4 axis (Z).

1 22. (Original) Machine according to Claim 21,
2 characterized in that said means (230) for displaceably actuating
3 the filling apparatus consist of a motor (231) connected, by means
4 of transmission means, to a frame (232) integral with the hopper
5 (211).

1 23. (Original) Machine according to Claim 21,
2 characterized in that said means (230) for actuating the frame
3 (232) are of the variable/controllable speed type.

1 24. (Original) Machine according to Claim 18,
2 characterized in that it comprises means for weighing the product
3 (2).

1 25. (Original) Machine according to Claim 24,
2 characterized in that said means for weighing the product (2) are
3 arranged upstream of the said supply tube (210).

1 26. (Original) Machine according to Claim 18,
2 characterized in that it comprises means (500) for weighing the bag
3 (1) during filling.

1 27. (Original) Machine according to Claim 26,
2 characterized in that said weighing means (500) consist of load
3 sensors (501) connected to the bag retaining means (112).

1 28. (Original) Machine according to Claim 24,
2 characterized in that the mouth (210a) of the tube (210) supplying
3 the product (2) is equipped with rotating plates (210b) able to be
4 arranged transversely with respect to the mouth (210a) of the tube,
5 so as to cause closing thereof, and parallel thereto, so as to
6 cause opening thereof.

1 29. (Original) Machine according to Claim 18,
2 characterized in that it comprises means (240) for measuring the
3 volume of the product (2) to be introduced into the bag (1).

1 30. (Original) Machine according to Claim 29,
2 characterized in that said volume measuring means consist of a
3 feeder screw (240) coaxially arranged inside the supply tube (210)
4 and able to convey measured quantities of product (2) from the
5 hopper (211) to the bottom (1b) of the bag.

1 31. (Original) Machine according to Claim 30,
2 characterized in that said feeder screw (240) is associated with
3 variable speed actuating means with a system for control thereof.

1 32. (Original) Machine according to Claim 18,
2 characterized in that it is associated with air and dust suction
3 means (300).

1 33. (Original) Machine according to Claim 32,
2 characterized in that said suction means consist of longitudinal
3 ducts (310) arranged in a diametral position with respect to
4 the supply tube (210) and extending substantially over the whole
5 axial length of the said tube.

1 34. (Original) Machine according to Claim 18,
2 characterized in that it comprises deaeration means consisting of a
3 plurality of pipes (1311), the bottom end part (1311a) of which is
4 hinged with pins (1311b) able to allow expansion thereof in the
5 transverse direction, by an amount corresponding to the width of
6 the bag.

1 35. (Original) Machine according to Claim 18,
2 characterized in that it is a forming/filling machine.

1 36. (Original) Machine according to Claim 35,
2 characterized in that it comprises at least one station (F) for
3 forming the bag (1) from a tubular material (101) unwound from a
4 reel (101a), at least one station (R) for filling the bag with the
5 material supplied by the filling apparatus (200), and at least one
6 station (S) for sealing the mouth (1a) of the bag.

1 37. (Original) Machine according to Claim 35,
2 characterized in that it comprises means (110) for conveying the
3 bag from the forming station (F) to the filling station (R) and to
4 the sealing station (S).

1 38. (Original) Machine according to Claim 37,
2 characterized in that said conveying means consist of a slide (110)
3 displaceably actuated with an alternating outward and return
4 movement and equipped with facing pairs. of grippers (110a) for
5 gripping the bag along the opposite vertical edges thereof.

1 39. (Original) Machine according to Claim 38,
2 characterized in that said slide is able to impart to the grippers
3 (110a) movements in the direction transverse to the direction of
4 feeding of the bag (1) so as to cause opening of its mouth (1a)
5 during travel from the forming station (F) to the filling station
6 (R) and closing thereof during travel from the station (R) to the
7 sealing station (S).

1 40. (Original) Machine according to Claim 38,
2 characterized in that the displacement movements of said slide
3 (110) are at a fixed height.

1 41. (Currently amended) ~~Method for~~ A method of filling a
2 bag [(1)] with loose material (2), ~~characterized in that it~~
3 ~~comprises the following steps:~~ comprising the steps of:

4 providing ~~— preparation of an apparatus [(200)] for~~
5 filling bags [(1)] with a loose material products (2);

6 providing ~~— preparation of a programmed quantity of said~~
7 material [(2)] to be introduced into the bag;

8 [[-]] conveying of a bag [(1)] into a position
9 substantially coaxial with and underneath the filling apparatus
10 [(200)];

11 [[-]] opening a mouth of the bag [(1)] and retainig
12 thereof the bag in said coaxial position and at a fixed height;

13 ~~— introduction of~~ introducing the apparatus (200) ~~inside~~
14 into an interior of the bag [(1)] as far as a predefined height
15 in the vicinity of ~~[[the]]~~ a bottom (1b) thereof of the bag;

16 ~~- start of the first bag filling step~~ starting to fill
17 the bag from the apparatus at said predefined height;

18 ~~— simultaneous return movement upwards of~~ simultaneously
19 returning the apparatus [(200)] , upwardly while continuing to
20 fill the bag with said material from said apparatus towards the
21 mouth [(1a)] of the bag [(1)] ;

22 ~~termination of~~ terminating the filling [[step]] at a
23 predefined height of the preparation inside the bag [[1]] ; and
24 ~~extraction of~~ extracting the filling apparatus from
25 the bag [[1]].

26 42. (Currently amended) The method Method according to
27 Claim 41 , ~~characterized in that~~ wherein the conveying of the bag
28 [[1]] is performed at a fixed height.

1 43. (Currently amended) The method Method according to
2 Claim 41 , ~~characterized in that the~~ wherein a speed of
3 introduction/extraction of the filling apparatus [[200]]
4 into/from the bag is controlled to be different from [[the]] a
5 speed of [[its]] return of the apparatus upwardly ~~upward movement~~
6 simultaneously with the filling [[step]].

1 44. (Currently amended) The method Method according to
2 Claim 41 , ~~characterized in that~~ wherein the filling is performed
3 by ~~means of~~ gravity.

1 45. (Currently amended) The method Method according to
2 Claim 41 , ~~characterized in that~~ wherein the quantity of product
3 ~~(2)~~ material to be ~~inserted~~ introduced into the bag is prepared
4 using a net weight technique.

1 46. (Currently amended) The method Method according to
2 Claim 41 ~~, characterized in that the~~ wherein a quantity of said
3 material product ~~(2)~~ to be inserted introduced into the bag is
4 prepared using a gross weight technique.

1 47. (Currently amended) The method Method according to
2 Claim 41 ~~, characterized in that~~ wherein the filling is of the
3 volumetric type.

1 48. (Currently amended) The method Method according to
2 Claim 47 ~~, characterized in that~~ wherein the filling is performed
3 using feeder screw means ~~(240)~~ coaxially arranged inside the
4 filling apparatus ~~[(200)]~~.

1 49. (Currently amended) The method Method according to
2 Claim 41 ~~, characterized in that~~ wherein the filling operation
3 comprises ~~the following steps:~~

4 ~~[[-]]~~ start of a first bag filling step of the
5 volumetric type;

6 ~~[[-]]~~ simultaneous return movement upwards of the
7 apparatus ~~[(200)]~~ towards the mouth ~~[(1a)]~~ of the bag ~~[(1)]~~;

8 ~~[[-]]~~ termination of the said first volumetric filing
9 step;

10 ~~[[-]]~~ start of a second filling step using the gross
11 weight technique until the final programmed weight of the bag is
12 reached; and

13 [[-]] extraction of the filling apparatus from the bag
14 [[(1)]].

1 50. (Currently amended) The method Method according to
2 Claim 49 , ~~characterized in that~~ wherein the speed of supply of the
3 ~~product~~ (2) material during the first filling step is much greater
4 than the supply speed during the second filling step.

1 51. (Currently amended) The method Method according to
2 Claim 49 , ~~characterized in that~~ wherein the first volumetric
3 filling step is performed using feeder screw means.

1 52. (Currently amended) The method Method according to
2 Claim 41 , ~~characterized in that it~~ which comprises applying dust
3 and air suction during the bag filling step.

1 53. (Currently amended) The method Method according to
2 Claim 41 , ~~characterized in that~~ wherein conveying of the bag
3 [[(1)]] underneath the filling apparatus [[(200)]] is performed by
4 means of conveying means forming part of an automatic machine.

1 54. (Currently amended) The method Method according to
2 Claim 53 , ~~characterized in that~~ wherein said conveying means
3 consist of a slide [[(110)]].

1 55. (Currently amended) The method Method according to
2 Claim 54 ~~, characterized in that~~ wherein said slide ~~[(110)]~~ is
3 displaceably actuated with an alternating outward and return
4 movement and is equipped with pairs of facing grippers ~~(110a)~~ for
5 gripping the bag along its opposite vertical edges.

1 56. (Currently amended) The method Method according to
2 Claim 54 ~~, characterized in that~~ wherein said slide ~~[(110)]~~ is
3 able to impart movements in a direction transverse to the direction
4 of feeding of the bag ~~[(1)]~~, so as to cause opening of ~~[(its)]~~
5 said mouth ~~[(1a)]~~ during travel from the forming station ~~[(F)]~~
6 to the filling station ~~[(R)]~~ and closing thereof during travel
7 from the station ~~[(R)]~~ to the sealing station ~~[(S)]~~.

1 57. (Currently amended) The method Method according to
2 Claim 53 ~~, characterized in that~~ said automatic machine is a
3 forming/filling machine.